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IN THE UNITED STATES DISTRICT COURT

FOR THE EASTERN DISTRICT OF CALIFORNIA

SACRAMENTO DIVISION

CHRISTOPHER KOHLS, et al.,

Plaintiffs,

v.

ROB BONTA, in His Official Capacity as Attorney General of the State of California, and SHIRLEY N. WEBER, in Her Official Capacity as California Secretary of State,

Defendants.

Case No. 2:24-cv-02527-JAM-CKD

DECLARATION OF R. MICHAEL ALVAREZ IN SUPPORT OF DEFENDANTS' MOTION FOR SUMMARY JUDGMENT

Date:	August 5, 2025
Time:	1:00 p.m.
Dept:	6
Judge:	The Honorable John A. Mendez
Trial Date:	Not Scheduled
Action Filed:	9/17/2024

I, R. Michael Alvarez, Ph.D., declare:

Qualifications:

1. I am the Flintridge Foundation Professor of Political and Computational Social Science at the California Institute of Technology in Pasadena, California. I received my BA in political science from Carleton College, and my MA and PhDs in political science from Duke University. I have written scientific studies published in peer-reviewed journals and have published numerous books on voting behavior, political campaigns, political communications, election technology, election administration, political and statistical methodology, machine learning, and artificial intelligence. I am a Fellow of the American Academy of Arts and Sciences and a Fellow of the Society for Political Methodology. My current curriculum vitae is attached to this declaration as Exhibit 1.

2. I am the founding co-director of the Caltech Linde Center for Science, Society, and Policy and am the co-director of the Caltech/MIT Voting Technology Project.

3. I am the Principal Investigator of the Caltech 2024 Election Integrity Project. In that role I have conducted various studies of election misinformation in the 2024 election, developed artificial intelligence tools to pre-bunk election rumors, and led a series of online webinars with election officials during the 2024 election discussing the election rumors and misinformation they encountered during the 2024 election and how they dealt with election misinformation. In January 2025, I organized a major international conference on election misinformation that was held (online) at Caltech.

4. I have published research in peer reviewed journals about the causal effects of social media platform's content moderation policies (MISDOOM 2023), and about the detection and moderation of toxicity in competitive online multiplayer gaming (Frontiers in Computer Science 2024). I published a paper that discusses how generative artificial intelligence and large language models are affecting political communications and campaigning (Frontiers in Political Science 2023). I have forthcoming research articles that use large language models to study incivility and toxicity in communications among legislators (Journal of Politics 2025). My current research involves using artificial intelligence to pre-bunk rumors and falsehoods.

The Political Power of Visual Communications

5. It is commonly said that "a picture is worth a thousand words." Decades of research have shown that adage is true in electoral politics. Early research showed that a candidate's visual appearance in photographs on campaign flyers provided information about a candidate's attributes, and those evaluations were then associated with election outcomes (Rosenberg et al. 1986), in particular in low-information elections (Banducci et al. 2008). Subsequent studies have continued to show that people make important inferences and judgments about the competence of political candidates after quickly viewing only the candidate's facial image, and that these inferences about competence are associated with election outcomes (Todorov et al. 2005). People can also draw inferences about other traits like deceitfulness and perceived threat from the facial images of political candidates (Mattes et al. 2010), and from manipulated images that removed the candidate's face (Spezio et al. 2012). Thus, research has shown that people draw important cues and heuristics about political candidates from their visual representations and that these cues and heuristics are used in their voting decision-making process.

6. Since political candidate images provide powerful cues for voters, candidates and their campaigns may use technologies to manipulate their images or those of their opponents. Not surprisingly, seminal research by Ansolabehere et al. (1994) showed that manipulating television advertisements to make them negative can depress voter turnout, while other earlier research found that manipulating political television advertisements can make them more effective for the sponsoring candidate (Noggle and Kaid 2000).

7. The early research focused on manipulation techniques now called non-synthetic or traditional manipulation of image and videos (Gerstner et al. 2021). An example would be using a commonly-available software package like Adobe Photoshop to change the hairstyle of a candidate in an image. While software to manipulate images and videos in traditional ways is commonly available, non-synthetic manipulation is time-consuming and requires considerable expertise. A robust research literature on the detection of altered digital images (digital images forensics) has developed, offering many tools for detecting most forms of non-synthetic manipulated visual images (Ferreira et al. 2020).

The Rise of Political Deepfakes

8. However, with the development of artificial intelligence (AI), in particular generative artificial intelligence methods that can easily produce or alter visual materials, a new approach called synthetic manipulation of visual or video materials has arisen. Synthetic manipulation uses AI to produce new visual content or to alter existing visual content (Gertsner et al. 2021). Synthetic manipulation allows for the creation of "… synthesized realistic videos of politicians making statements that they never said, colloquially termed *deepfakes*" (Barari 2024). Thus political deepfakes are synthetically altered digital content, which have been manipulated to deceptively claim or imply that an event or statement occurred, when in fact it did not.

9. The problems that political deepfakes pose for democracy may be profound. Because they can be produced using AI, political deepfakes may be produced much more cheaply and maybe be more realistic and difficult to detect than traditionally manipulated images or videos. Because deepfakes can be produced quickly and cheaply, their developers can rapidly produce new and improved versions of the deepfaked content and thus generate increasingly effective and persuasive content. Social media can be used to spread deepfakes quickly, and as social media platforms are moving away from content moderation, it may increasingly be difficult for the public to not fall victim to political deepfakes.

10. Obviously, one of the motivations for producing a political deepfake is to mislead the viewer. Thus political deepfakes deliberately seek to spread falsehoods or misleading information. Given that the problem of political deepfakes has only recently emerged, and that they are difficult to detect, the extent of their production, dissemination, and reach is the subject of current research. One effort is the Political Deepfakes Incidents Database (PDID), which started collecting examples of political deepfakes in 2023 and now contains information regarding over 800 political deepfake incidents (Walker et al. 2024). This is likely an underestimate of the number of political deepfakes that have been disseminated, due to the difficulties associated with the identification of political deepfakes. However, the PDID data provide an estimate about the proliferation of political deepfakes, and the incidence data they report show that political deepfakes are being produced and disseminated in recent years.

How Political Deepfakes Affect Viewers

11. What effects do political deepfakes have on their viewers? There is a wide array of ways that political deepfakes might affect a viewer. One potential effect would be to persuade a viewer to change their opinion, attitude, or preference. For example, a political deepfake could be designed to shift a viewer from supporting one issue position to supporting another issue position; or to persuade a viewer from supporting one candidate to supporting another candidate. Such direct political persuasion is usually quite difficult, as citizens and voters often have relatively strongly held opinions about issues and candidates (Alvarez 1998).

12. Political deepfakes can affect viewers in other ways. Importantly, political deepfakes can introduce uncertainty or ambiguity in the minds of citizens and voters — they can sow confusion. Instead of changing the opinion or preference of a viewer, they can lead the viewer to be unsure, and such uncertainty can change subsequent behavior; ambiguity or uncertainty about a political issue can make it difficult to use that issue as part of the voting decision-making process, while uncertainty about candidates could lead to a voter abstaining from either candidate or from casting a ballot at all (Alvarez 1998; Alvarez and Brehm 2002).

13. Furthermore, political deepfakes can have other consequences for viewers. They can be used to generate distrust in political institutions and electoral procedures. They can be used to harass and distract the crucial work that election officials and election workers need to perform in the crucial period immediately before and after an election. They can be used to misinform voters about election rules and procedures. In short, political deepfakes can have a multitude of effects on their viewers.

14. Because political deepfakes are a new phenomenon, research about their effects on viewers is limited but growing. One study found that while viewers were not persuaded in the truthfulness of statements made in an experimentally deepfake video, the political deepfake increased uncertainty among viewers, which also reduced their trust in news from social media (Vaccari and Chadwick 2020). Dobber et al. (2021) studied political deepfakes intended to discredit political candidates and found that such deepfakes can have detrimental effects on viewers' attitudes about the targeted candidate. Dobber et al. (2021) also found support for their

hypothesis that the effects of political deepfakes may be stronger for groups of viewers who are specifically targeted by the deepfake, an issue that we will return to later.

15. While not a study about political deepfakes, Wittenberg et al.'s recent study about the persuasiveness of political video and political text are informative (2021). In two experimental studies, they found evidence that information presented in video form was perceived by viewers as more authentic than information presented in textual form, implying that political video content might be more believable to voters than text. However, Wittenberg et al. (2021) find that political video is only modestly more persuasive than political text. In a similar line of research, a forthcoming study by Barari et al. (2024) compares the persuasiveness of false information presented in video, text, and audio formats. They find that presentation of misinformation in the form of a political deepfake is about as deceptive as presentation of the same misinformation in text or audio form. This indicates that political deepfakes are effective in presenting political misinformation.

16. To date, the effects of political deepfakes on voter trust and confidence in elections are understudied. However, studies have shown that engagement with election fraud conspiracy theory content on social media is associated with lower turnout in elections (Green et al. 2022). Berlinski et al. (2021) provided experimental evidence showing that exposure to false claims about voting fraud reduces confidence in elections. Other studies have shown that exposure to conspiracy theories about election rigging reduced confidence in elections and support for democratic norms (Albertson and Guiler 2020). All of these studies indicate that political deepfakes, if developed with election fraud conspiracy theory content or false claims about election fraud, could reduce voter trust and confidence in elections and more generally in democratic norms.

How Political Deepfakes Affect Election Administration and Trust in Elections

17. In recent election cycles, election officials at the local and state levels have been the subjects of physical and social media harassment and attacks (e.g., Gross et al. 2023). While at this point research has not examined which of these threats and attacks may have involved

political deepfakes, it is likely only a matter of time before deepfake attacks are developed against election officials personally or against the work that they undertake during election season. The recent 2024 survey of election officials conducted by Reed College's Elections and Voting Information Center (EVIC) found that over half of election officials surveyed were subjected to personal insults, harassment or threats, especially election officials from larger jurisdictions. Many of the election officials in the EVIC survey reported that they know of other election officials who have left the profession due to threats and harassment. The EVIC survey also found that because of threats and harassment, election officials were changing their workflows by reducing public contact and making other changes in election policies and procedures. Deepfake attacks might enhance these trends in future elections.

How New Technologies Make the Development of Political Deepfakes Easier

18. While early AI generated videos, with their distorted physics, nonsensical transitions from frame to frame, and extra fingers were bad enough to be humorously shared on social media, people are decreasingly able to differentiate between real content and high quality fakes. In a recent study, Nightingale and Farid (2022) found that subjects were unable to distinguish real facial images from synthetic facial images. The research also showed that subjects judged the synthetic facial images as more trustworthy (Nightingale and Farid 2022). Advances have come from both more powerful models as well as new approaches to generating deepfakes, such as altering or adapting pre-existing footage, subtly altering it to mislead its audience (Cole, 2024). The same tools and algorithms used to identify content as AI-generated can be used to improve new versions, inducing a cat-and-mouse game known in the computer science literature as the "strategic classification" problem (Hardt et al, 2016). Even as ever more sophisticated efforts to identify AI content are implemented, efforts to label artificial content will also improve the generated content. The result is the ever-increasing quality of deepfake content, with messages that can be individually tailored towards individual users.

19. Realistic AI image and video generation models are already ubiquitous. Privately hosted video generation models like OpenAI's SORA (Liu et al, 2024) and Google DeepMind's

Veo 2 (Gupta et al, 2024) can produce highly realistic short-form videos in a matter of seconds. Open-source video generation models like GenMo's Mochi (Genmo, 2024) are beginning to match or even surpass the performance of private models. By definition, open source models' weights (the parameters or coefficients in the neural networks that make up the important components of these generative AI models) themselves are freely available for download, and will only become more powerful and wide-spread over time.

20. Despite significant industry efforts to implement safeguards within generative AI systems, determined actors can readily circumvent these protective measures through increasingly sophisticated techniques. Safety mechanisms in AI models are frequently compromised through adversarial prompt engineering, where users experiment with carefully crafted inputs to elicit prohibited content (Shayegani et al, 2023). Recent research demonstrates that even consumer-grade models can be "jailbroken" using simple linguistic manipulations that exploit gaps in content filtering systems (Wei et al, 2023). Potentially more concerning are the developments in model "ablation" techniques, where developers deliberately remove or deactivate safety layers from existing models to create unconstrained versions that operate without ethical guardrails (Zou et al, 2023). These modified models proliferate rapidly through underground communities, enabling users with minimal technical expertise to generate deepfake content that evades detection systems. As detection systems improve, adversarial techniques evolve in response, creating an asymmetric advantage for deepfake creators who need only find a single vulnerability to circumvent protective measures.

21. Political deepfakes have demonstrated significant cross-spectrum appeal, with examples affecting political figures across ideological divides. In February 2025, a manipulated video suggesting an inappropriate relationship between former President Trump and Elon Musk, depicting Trump kissing Musk's feet, was distributed via hacked screens at the U.S. Department of Housing and Urban Development headquarters, spreading rapidly across social media platforms (ET Online, 2025). Similarly, a deepfake advertisement employing AI voice synthesis to clone Vice President Harris's voice while making statements she never uttered reached millions of users after being shared by Elon Musk on his social media platform X without initially

indicating it was parody content (Swenson, 2024). These examples illustrate the velocity at which synthetic media can propagate through digital ecosystems regardless of partisan origin. Research has documented at least 200 politically-motivated deepfakes that achieved significant virality during the 2022 midterm election cycle, with hundreds of millions of monthly views (Corsi et al, 2024). The ubiquity of deepfake content across the political landscape indicates that the technology has transcended partisan boundaries to become a generalized tool for political manipulation that poses systemic challenges to electoral information ecosystems (Chesney and Citron, 2019).

Political Deepfakes Are Sticky

22. The persistent cognitive impact of political deepfakes—what we term their "stickiness"—derives from two interrelated technological capabilities. First, contemporary AI systems generate deepfakes with sufficient realness to systematically undermine the discriminatory heuristics humans traditionally employ to differentiate authentic from synthetic content. This technological capability creates a particularly pernicious form of what Ecker et al. (2010) identify as the "continued influence effect," wherein retracted or corrected information persists in affecting memory and reasoning processes despite subsequent corrections. Their experimental evidence demonstrates that even explicit, detailed warnings about misinformation—while somewhat effective at reducing this persistence—fail to eliminate the cognitive residue of initial exposure. In the context of political deepfakes, this suggests that even when synthetic content is subsequently identified and labeled as manipulated, the initial perceptual processing and cognitive encoding has already established belief structures based on the misinformation being true that are resistant to correction.

23. Second, contemporary AI systems facilitate the development of highly persuasive content through multimodal optimization across both message structure and delivery mechanisms. As previously discussed, Simchon et al. (2024) documented how AI-generated content targeted to viewers with specific personality traits demonstrates significantly enhanced persuasive capacity compared to generic messaging. This optimization extends beyond demographic characteristics

to include message framing, narrative structure, emotional valence, and modality selection. Matz et al (2024) found that AI-optimized persuasive messaging incorporating domain-specific knowledge about targeted voter populations demonstrated a significant increase in influence on viewers compared to traditionally constructed political messaging, across different domains of persuasion.

24. These findings correspond with earlier research from Dobber et al. (2020), which established that microtargeting strategies significantly increase the persuasive effectiveness of political deepfakes. The combination of perceptual realism and persuasive optimization creates what Baker and Détienne (2019) characterize as "cognitive stickiness"—the resistance of synthetically induced beliefs to subsequent correction or modification, even when contradictory evidence is provided. This persistence of belief, documented across multiple experimental paradigms (Barari et al., 2024; Wittenberg et al., 2021), suggests that political deepfakes may generate durable impacts on electoral attitudes and behaviors that transcend conventional models of information processing and belief formation.

Political Deepfakes Can Quickly Spread

25. The propagation velocity of political deepfakes constitutes a significant differential vulnerability compared to traditional misinformation. Social media architectures, optimized for engagement maximization, provide particularly hospitable environments for synthetic political content. As Vosoughi et al. (2018) empirically demonstrated in their analysis of rumor cascades, false information propagates "farther, faster, deeper, and more broadly" than truthful content across digital networks, with novelty and emotional activation serving as primary drivers of transmission probability. Political deepfakes, inherently novel and frequently designed to elicit strong emotional responses, exploit these architectural vulnerabilities to achieve viral distribution patterns characterized by exponential early-stage growth and cross-platform migration. Corsi et al. (2024), in their examination of deepfakes on X during 2023, found synthetic tweets accounted for hundreds of millions of views per month.

26. Targeted political deepfakes represent a particularly concerning propagation modality due to their capacity for unobtrusive dissemination through closed communication channels. Unlike broadcast misinformation, which operates in relatively observable public spaces, targeted deepfakes can propagate through encrypted messaging applications, private social media groups, and personalized content delivery systems that remain largely invisible to researchers, platform governance teams, and electoral oversight bodies. Marwick and Lewis (2024) documented how relatively unsophisticated actors successfully identified and targeted vulnerable voter segments using commercially available tools and openly accessible datasets, as previously discussed. This private propagation modality creates substantial detection and response challenges, as intervention often becomes possible only after significant exposure has occurred.

27. The contemporary social media ecosystem's fragmentation further complicates effective monitoring and intervention. Each platform implements distinct content moderation policies, technical architectures, and algorithmic recommendation systems, creating substantial coordination challenges for coherent detection strategies. When coupled with automated distribution through bot networks, which have already played a disproportionate role in spreading articles from low-credibility sources during the 2016 election (Ferrara et al., 2016; Shao et al., 2018), these propagation mechanisms create a particularly challenging information environment for maintaining electoral information integrity.

Political Deepfakes and AI-based Microtargeting

28. Political deepfakes developed using AI can also be paired with AI-based microtargeting. Microtargeting involves the development of persuasive content that is targeted to quite specific demographic groups. Microtargeting often involves the use of large datasets, which have detailed information about individuals, including administrative data (for example, from voter registration databases), social media, and other information that can be linked or matched by individual identifiers. Political deepfakes can be developed to persuade or confuse very specific demographic groups, then targeted to individuals in those groups using AI and machine learning models. Microtargeted political deepfakes could be highly effective at persuading or

confusing the targeted individuals, and could be very difficult to detect if they are sent directly to specific groups of individuals. For example, a deepfake video could be developed, using a credible local politician, providing incorrect instructions about the deadlines for returning mail ballots, and sent to the social media accounts of registered voters who have only voted by mail in the past.

29. Research has shown that microtargeting strategies can increase the persuasive effectiveness of political deepfakes (Dobber et al. 2020). That is, by exposing those who are most open to persuasion to a political deepfake, the perpetrator of the deepfake can increase the efficiency of their campaign. In a very recent study, Simchon et al. (2024) explored a different type of microtargeting strategy Instead of focusing on demographics, they focused on personality attributes (in their study, the personality trait of openness). Simchon et al. (2024) showed that generative AI and personality-based microtargeting can develop a "manipulation machine", in which personalized ads generated by AI that are aligned with an individual's personality are more persuasive than non-personalized AI-generated ads.

Can Political Deepfakes Be Identified/Detected?

30. Political deepfakes generated by AI can be highly realistic, and thus difficult for both human observers and automated systems to detect as misleading. The sophistication of contemporary deepfake technology has advanced substantially beyond early implementations that contained obvious artifacts such as unnatural blinking patterns or inconsistent facial features (Korshunov and Marcel, 2019). Modern deepfake generators employ increasingly sophisticated techniques for face synthesis, attribute manipulation, and audio reproduction that create highly convincing counterfeit media (Nguyen et al., 2022). These techniques can generate photo-realistic face images, edit facial attributes to create false identities for social media dissemination, and synthesize convincing voice replications through either text-to-speech synthesis or voice conversion methods (Verdoliva, 2020). The proliferation of accessible manipulation tools further complicates authentication and integrity verification of potentially manipulated political content

as these applications allow for secondary modifications that can mask telltale signs of synthesis (Li et al., 2020).

31. Detection of political deepfakes constitutes an active and rapidly evolving research domain with multiple methodological approaches under development. Traditional forensic techniques initially employed for detecting conventional image forgeries have demonstrated limited effectiveness when applied to AI-generated content (Agarwal et al., 2019). Consequently, researchers have developed two primary categories of detection methods. First, techniques based on handcrafted features extract specific artifacts or statistical patterns from suspected deepfakes (see e.g. McCloskey et al. (2019) or Guarnera et al. (2020)). The second category employs deep learning architectures to automatically identify deepfake signatures (see e.g. Nataraj et al. (2019), Yu et al. (2019), or Marra et al. (2019)). Despite these advances, Guera and Delp (2018) demonstrated that most detection methods remain vulnerable to adversarial modifications and post-processing operations including noise addition, compression, and blurring.

32. The same tools and algorithms used to identify content as AI-generated can be used to improve new generations of deepfakes, inducing what computer scientists term the "strategic classification" problem (Hardt et al., 2016). This creates a perpetual technological arms race between detection and generation capabilities. As Rossler et al. (2019) documented, detection methods achieving 95% accuracy on one generation of deepfakes frequently drop below 65% accuracy when confronted with subsequent generations that have been optimized to evade detection. This dynamic fundamentally advantages deepfake creators, who need only find a single vulnerability in detection systems to successfully distribute misleading content, while detection systems must comprehensively address all potential manipulation strategies. The asymmetric nature of this contest suggests that even as detection techniques improve, the generation of convincing deepfakes likely remains technically feasible for motivated actors (Dolhansky et al., 2020).

33. The scale and diversity of contemporary social media platforms further complicate effective detection and monitoring of political deepfakes. The decentralized nature of platforms including TikTok, X, Truth Social, Instagram, and numerous others creates significant

fragmentation in monitoring capabilities (Paris and Donovan, 2019). Each platform implements distinct content moderation policies, employs different technical architectures, and attracts demographically diverse user bases—creating substantial coordination challenges for coherent detection strategies.

34. In short, while numerous technical approaches for deepfake detection show promise in controlled experimental settings, the dynamic nature of deepfake generation techniques, the strategic adaptation of generators to evade detection, and the fragmented media distribution landscape collectively present substantial challenges for comprehensive identification of political deepfakes. These challenges suggest that technical detection alone will likely prove insufficient, necessitating complementary approaches including digital media literacy initiatives, institutional verification systems, and regulatory frameworks to mitigate the potential democratic harms of synthetic political content.

Political Deepfakes Are a National Security Issue

35. There is growing concern that foreign adversaries (like Russia, Iran and China) will use sophisticated synthetic manipulation approaches to influence U.S. elections and election infrastructure. Microsoft recently analyzed two such AI-enabled political influence operations in 2024, both involving the use of generative AI to develop compelling visual content that sought to influence American public opinion and political events (Microsoft 2024). Regarding one of these Chinese state-affiliated influence operations, Microsoft (2024) reported:

"Taizi Flood is the most prolific threat actor in this arena, using third-party AI technology, including technology that generates virtual news anchors, for its online campaigns. With influence operations spanning over 175 websites and 58 languages, Taizi Flood has continuously mounted reactive messaging campaigns around high-profle geopolitical events, with a focus on portraying the United States in an unfavorable light and furthering Beijing's interests in the Asia-Pacific region. During the Maui, Hawaii wildfires in August 2023, the actor used AI-generated images of burning coastal roads and residences to augment the conspiratorial narratives about U.S. Government complicity it spread across social media platforms."

36. Microsoft (2024) also discussed at length a case in 2024 where a Russian state-affiliated influence group ("Storm-1679") developed a fake documentary, including AI-generated audio which used the voice of actor Tom Cruise, supposedly criticizing the leadership and operations of the International Olympic Committee. This video, and a "sequel", were part of Russian efforts to discredit the 2024 Olympics in Paris (Microsoft 2024). While Microsoft (2024) has concluded that so far these AI-generated influence campaigns have had limited reach, they warn that "if integrated into otherwise creative and multifaceted influence operations, AI may prove to offer a significant capability in reaching and engaging audiences in the future."

37. Similarly, researchers have discussed how political deepfakes may increasingly be used by nonstate actors in their attempts to achieve their political goals. One example is how terrorist groups in India have used political deepfakes for recruitment and to provoke violence (Kreps 2021). Deepfakes might also be developed in target locations to influence public opinion about military activities (Kreps 2021).

Can Political Deepfakes Be Mitigated?

38. As a type of misinformation, political deepfakes, once disseminated, can be difficult to mitigate. There are two ways that political misinformation can be mitigated: pre-bunking or de-bunking, with current research noting that each can be effective (van der Linden 2022, Bruns et al. 2024, Roozenbeek and van der Linden 2024). Pre-bunking involves exposing individuals to misinformation and warning them beforehand that it is misinformation, in an attempt to strengthen their cognitive tools to be more skeptical of future misinformation. De-bunking involves trying to persuade the individual that the misinformation is incorrect and that they should not believe it.

39. As mitigation strategies, pre-bunking and de-bunking have different strengths and weaknesses. Pre-bunking requires the identification of the deepfake message prior to dissemination, and a population-level effort to inoculate many potential viewers to the message so that they will be more likely to treat it skeptically when they encounter the actual deepfake (van der Linden 2023). De-bunking requires targeting all or most viewers of a political deepfake and

providing them effective counter-messaging. Unfortunately, research has found that once misinformation takes hold, the misinformation can continue to mislead the recipient even when de-bunked (Lewandowsky et al. 2012). While both pre-bunking and de-bunking are promising methods for countering misinformation and political deepfakes, it is not clear at present how these methods could be deployed at a very large scale (say the state of California).

40. Not surprisingly, with strengthened media literacy skills and greater political sophistication, people can be more likely to identify political deepfakes and less likely to believe that they are accurate (Appel and Prietzel 2022). However, developing heightened media literacy skills and more political sophistication as a means to train the electorate to better detect deepfakes would require a large investment of resources.

41. Research has also focused attention on the labeling of misinformation. Substantial research indicates that labeling misinformation is generally effective at limiting its credibility and spread (Martel and Rand 2023). More specifically, studies have documented that warning labels can diminish the credibility and believability of online misinformation (Clayton et al. 2020, Koch et al. 2023, Pennycock et al. 2020, and Parker and Wood 2022). Misinformation warnings can also mitigate the amplification and spread of misinformation (Koch et al. 2023, Epstein et al. 2022, Mena 2020, Li et al. 2023).

42. In recent research, Josephs et al. (2024) note that deepfake detection in the real world is a difficult problem. Much of the research on misinformation and deepfake detection has occurred in experimental settings and in environments that might make deepfake detection easier than in the real world — thus Josephs et al. (2024) note that researchers may have overestimated the ability of viewers to easily detect deepfakes in real world settings. For example, in the real world deepfakes are embedded in other material. Viewers may be distracted and thus may not pick up on subtle cues that a video they were watching is unrealistic. Sometimes viewers might be watching a deepfake using an internet connection or technology that blurs the video in ways that might obscure cues that could reveal the manipulations of the video and images.

43. In order to make it easier for viewers to detect the often subtle distortions or oddities that might help identify a deepfake, Josephs et al. (2024) studied the use of an AI system which

identifies existing distortions in a deepfake video, and which then amplifies those distortions. They found that viewers are more likely to identify the AI-distorted video as a deepfake, thus opening the door to a new way in which deepfake videos might be manipulated to make their deepfake nature more obvious to more viewers.

44. Researchers have also begun to study other methods of warning about the presence of deepfake videos. Lewis et al. (2023) showed a series of videos to viewers, and those who were exposed to a relatively neutral deepfake video were generally unable to determine that they saw a deepfaked video. But among viewers who were warned that at least one of the videos they were seeing was a deepfake, about a fifth of viewers correctly identified the deepfaked video (Lewis et al. 2023). Their evidence indicates that the warning might generally increase skepticism among viewers about the veracity of all the videos they watched as part of their study (Lewis et al. 2023).

45. Finally, in recent years a robust research literature has arisen developing automated and AI-based methods for deepfake detection, much of this driven by the availability of the Deepfake Detection Challenge Dataset (Dolhansky et al., 2022). An obvious method for detection of political deepfakes and mitigating their effects would be the use of automated methods. Automated methods could identify and label political deepfakes as such, or use methods like those developed by Lewis et al. (2023) to distort political deepfakes to make them more readily identifiable by viewers. However, work by Groh et al. (2022) casts considerable doubt on a fully-automated approach, as they found that even the best automated computer vision approaches for deepfake detection performed about as well as human observers in the difficult task of deepfake detection.

Conclusion

46. Visual information and facial images provide important cues and heuristics for humans when they are asked to make decisions in situations where information is uncertain or limited. Political campaigns and candidates rely upon the power of visual information in their communications, as visual information has the power to persuade.

47. Given the power of visual information, such information also has the power to mislead and deceive. Compelling visual information, in particular in the context of videos and advertisements, can be used to spread rumors, conspiracy theories, and false information.

48. The rapid development of artificial intelligence, in particular generative artificial intelligence, has made it very easy for nearly anyone to produce misleading and false content, or to take existing visual or video content and alter it with the intent to mislead and deceive. The "synthetic manipulation" of political content creates "political deepfakes", that can now be developed in a matter of minutes at very low cost. With a wide array of social media platforms in existence, many of which have little or no content moderation, political deepfakes can be spread on social media and go viral rapidly, before they can be detected and mitigated.

49. The ease with which political deepfakes can be developed means that they can be mass produced. The mass production of political deepfakes implies that they can be tested for efficacy and optimized for maximum impact on the viewers they seek to mislead or deceive. This also means that many versions of a political deepfake can be produced for dissemination, making them difficult to detect at scale — with many versions of a political deepfake in circulation, some might escape human or machine detection. This also means that very similar (but slightly different in targeted ways) versions of deepfake political content can be disseminated to different targeted audiences. Artificial intelligence systems can also be used to assemble and analyze datasets to develop microtargeting strategies for political deepfakes, and microtargeted political deepfakes could be hard to detect and prevent while also very effective at persuasion.

50. While political deepfakes may be used to persuade or change opinions and behavior, they can also be used for other purposes. Research has shown that they can be used to generate uncertainty or ambiguity in the minds of viewers, thus producing confusion. Political deepfakes can also target political organizations and institutions, in particular election rules, procedures, and officials, casting doubt on their integrity and reducing trust in elections and democratic institutions. All of these effects of political deepfakes may influence political behavior, ranging from making voters less likely to turn out in elections to affecting who they may vote for in an election.

51. Given these uses of political deepfakes, there is concern among researchers and policymakers about the production of synthetically manipulated materials by state and non-state actors for the purpose of affecting American politics and elections. Research from organizations like Microsoft has shown that Chinese and Russian actors have been producing political deepfakes and have tried to disseminate political deepfakes during U.S. elections. As state and non-state actors with interests in affecting American elections experiment with deepfake technology, they may develop political deepfakes in future elections that might be very difficult to detect and deter.

52. Political deepfakes are difficult to detect, both by humans and by artificial intelligence. A large research literature in computer science has arisen in recent years, trying to develop computer vision methods to detect deepfakes. At present, these attempts to develop AI-based deepfake detectors have not kept pace with the development of systems to produce deepfakes, and so the technology for automated deepfake detection has not proven to be highly effective in that task.

53. Political deepfakes are sticky, as they have persistent cognitive impact. They are sticky because the technology of synthetic manipulation produces highly realistic content. The manipulation of existing content into a political deepfake, or the development of new content as a political deepfake, is highly realistic and this very believable. Secondly, political deepfakes are sticky because the technology can optimize both the message content and delivery. Because political deepfakes can be made inexpensively and quickly, their producers can generate one, test it for effectiveness, and then generate another that improves upon the first. This process can be repeated over and over to develop content that is highly effective. Also, AI can quickly sift through large datasets to find, analyze, and discover optimal target audiences for political deepfakes, through microtargeting, delivering persuasive content to the best target audience.

54. At present, research is focusing on pre-bunking methods for developing cognitive skills that people can use to be more skeptical when they are faced with misinformation, and on de-bunking methods for stopping the spread and effects of misinformation. While recent research indicates that both pre-bunking and de-bunking are effective, there are limitations in their use in

real-time and at the scale necessary for effectiveness. At present, while the research about these tactics is promising, it is unclear if pre-bunking or de-bunking a political deepfake in real-time at scale (say in the context of a gubernatorial election in California) is possible.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed this 7th day of March, 2025, in Pasadena, California.

R. Michael Alvarez
Declarant

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EXHIBIT 1

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[ACADEMIC BACKGROUND]

- Flintridge Foundation Professor of Political and Computational Social Science with tenure, California Institute of Technology, April 2024 to present.
- Founding Co-Director, The Ronald and Maxine Linde Center for Science, Society, and Policy (LCSSP), January 2023 to present.
- Professor of Political and Computational Social Science with tenure, California Institute of Technology, January 2020 to March 2024.
- Professor of Political Science with tenure, California Institute of Technology, February 2002 to 2019.
- Associate Professor of Political Science with tenure, California Institute of Technology, June 1997 to February 2002.
- Associate Professor of Political Science, California Institute of Technology, April 1995 to June 1997.
- Assistant Professor of Political Science, California Institute of Technology, December 1992 to April 1995.
- Robert S. Rankin Instructor of American Politics, Duke University, 1991-1992.
- Duke University, Ph.D., December 1992 (Political Science). M.A., with distinction on Ph.D. Preliminary Examination, May 1990, (Political Science).
- Carleton College, B.A., *magna cum laude*, 1986 (Political Science).

[GRANTS AND FELLOWSHIPS]

- John Randolph Haynes and Dora Haynes Foundation, 2024-2025. Project title: "Preventing Election Misinformation and Election Crises in Southern California" ($302,280), PI.
- Activision Publishing Inc., 2022-2025, Project title: "AI For Detecting and Mitigating Toxic Behavior" ($496,531), co-PI.
- Caltech Merkin Institute Translational Research Grant, 2022-2024, Project title: "Using Computational Modeling and a Comprehensive Task Battery to Identify the Cognitive Attributes Underpinning Susceptibility to Vaccine Skepticism" ($240,000), Investigator.
- Caltech Resnick Sustainability Institute, 2021-2022, Project title: "The Caltech Critical Zone Initiative" ($130,590), renewable 2022-2024, co-PI.
- National Science Foundation, 2021, Project title: "RAPID: Detecting and Deterring Harmful Online Speech Directed At American Election Officials", ($76,627), Principal Investigator. Award Number 2126095.
- National Science Foundation, 2021, Project title: "Election Science: Convergence Accelerator Workshop Proposal", ($95,447.00), Co-Principal Investigator. Award Number 2122039.
- State of California, Secretary of State, 2020, Project title: "VCA Los Angeles County Research" ($66,000).
- Google Cloud COVID-19 Research Credits Program, ($15,000 in GCP credits; continuation with $9,000 in GCP credits), "Managing Elections During the COVID-19 Pandemic."
- Google Cloud COVID-19 Research Credits Program ($7,500 in GCP credits; continuation with $16,350 in GCP credits), "Studying COVID-19 Pandemic Misinformation and Protest Using Social Media Data".

- State of Oregon. 2019. "State of Oregon Election Performance Audit Project" ($50,000), collaborative with Reed College.
- National Science Foundation. 2019. Project title: "Multidisciplinary Conference on Election Auditing" ($43,615), Co-Principal Investigator. Award Number 1757307.
- John Randolph Haynes and Dora Haynes Foundation. 2019-2021. Project title: "Monitoring the Integrity of Elections in Southern California: The 2020 Elections" ($375,330).
- John Randolph Haynes and Dora Haynes Foundation. 2018. Project title: "Assuring Election Integrity: A Comprehensive Ecological Framework for Evaluating Election Administration in Southern California" ($229,000).
- Ronald and Maxine Linde Institute of Economic and Management Sciences Research Grant, 2017. Project title: "Improving the Measurement of Individual Consumer Data", ($12,000).
- John Randolph Haynes and Dora Haynes Foundation Faculty Fellowship, 2017. Project title: "The consequences of primary process reform in California," ($12,000).
- Carnegie Corporation of New York, 2016-2017. Project title: Caltech/MIT Voting Technology Project: The Past, Present, and Future of Election Administration in the United States" ($75,000).
- Carnegie Corporation of New York, 2012. Project title: "Voting: What Has Changed, What Hasn't, and What Needs Improvement", May 2012-December 2012 ($50,000).
- California Forward, 2012. Project title: "Primary Process Reform and Political Representation in California", March 2012-December 2013, ($50,000).
- James Irvine Foundation, 2012. Project title: "Primary Process Reform and Political Representation in California", March 2012-December 2013, ($200,000).
- James Irvine Foundation, 2010. Project title: "Voting Systems Assessment Project", February 2010-December 2010, ($150,000).
- John Randolph Haynes and Dora Haynes Foundation, 2010. Project title: "The Rise of the Decline to States", January 1, 2010-December 31, 2010, ($159,039).
- John Randolph Haynes and Dora Haynes Faculty Fellowship, 2009. Project title: "Convenience Voting in California", April 2009-November 2009, ($12,000).
- Pew Charitable Trusts, "Make Voting Work: Evaluation of an Effort to Modernize the Voter Registration System in Ohio, Kentucky and Indiana," 2007-2009 ($221,200)
- Pew Charitable Trusts, "Make Voting Work: "Lessons for All in Determining Voter Intent and Election Integrity: A 2006 Post Election Audit Study of New Mexico's Optical Scan Ballots in Bernalillo County, New Mexico," 2007-2008 ($35,500, Subcontract, University of New Mexico)
- Pew Charitable Trusts, "Make Voting Work: "Verified Voter Paper Audit Trail Study," 2007-2008 ($19,525, Subcontract, University of Utah)
- Senior Fellow, USC Annenberg Center for Communication, 2006-2007
- Caltech CBIC Discovery Grant, "Neuroimaging of Political Judgment," 2006 ($4,350)
- John S. and James L. Knight Foundation, "Creating Accessible and Secure Voting Systems," 2006-2009, Co-principal Investigator ($375,000).
- Carnegie Corporation of New York, "Producing A Better American Electoral Process: Process, Technology, and Outreach", 2005-2007, Co-principal Investigator, ($300,000).
- Carnegie Corporation of New York, "Electronic Elections", 2005-2006, Co-principal Investigator, ($50,000).
- IBM Center for The Business of Government, "Database Integration for Election Administration", 2004-2005, Co-principal Investigator, ($15,000).
- John S. and James L. Knight Foundation, "Internet and Electronic Voting", 2003 – 2006, Co-principal Investigator, ($650,000).
- U.S. Department of Defense, "Evaluation of the Secure Electronic Registration and Voting (SERVE) Project", November 2002 – December 2005, Principal Investigator, ($1,700,000).
- Carnegie Corporation, "Internet Voting", 2003 – 2005, Co-principal Investigator, ($273,000).
- U.S. Department of Defense, "Evaluation of the Secure Electronic Registration and Voting (SERVE) Project", DASW01-02-C-0027, ($236,140), Principal Investigator.
- John Randolph Haynes and Dora Haynes Foundation Faculty Fellowship, 2002. Project title: "California's Voting Systems", May 2002 – October 2002, ($10,000).
- Carnegie Corporation, Project title: "MIT-Caltech Voting Technology Initiative", 2000 – 2001, Co-principal Investigator, ($450,000).

- USC-Caltech Center for the Study of Law and Politics, Associate Director, 2000 ($150,000) 2001 ($150,000), 2002 ($150,000).
- USC Center for Law, Communications, and Public Policy, "Manufacturing a Gender Gap", 1999, Co-principal Investigator ($8,500).
- John Randolph Haynes and Dora Haynes Foundation Faculty Fellowship, Project title: "An Experiment in Democracy: The Blanket Primary in California", 1999, ($8,000).
- National Science Foundation, Project title: "Issues and Economics in Multiparty Elections", 1997-99, Co-principal Investigator, ($85,000).
- IBM University Equipment Matching Grants Program, 1998, ($25,000).
- John Randolph Haynes and Dora Haynes Foundation Faculty Fellowship, Project title: "Who Governs Southern California: Will the Rise of Latino Political Power Continue?" 1997, ($8,000).
- IBM University Equipment Grants Program, Project title: "Individuals and Aggregates: New Computational Techniques for Resolving Ecological Relationships", 1996 – 97, Co-principal Investigator, ($134,000).
- John M. Olin Faculty Fellowship, 1994 – 95, ($45,000).
- John Randolph Haynes and Dora Haynes Foundation Faculty Fellowship, Project title: "Information in State-Level Political Campaigns: An Examination of the 1994 Senate and Gubernatorial Races in California", 1994, ($8,000).
- Duke Endowment Fellow, 1987 – 89.

[PROFESSIONAL HONORS]

- Google Cloud Research Innovator, 2022.
- Best Paper Prize "Fuzzy Forests for Feature Selection in High-Dimensional Survey Data: An Application to the 2020 U.S. Presidential Election" at the AMLDA 2021 conference (with Sreemanti Dey).
- American Academy of Arts and Sciences, Fellow, 2018.
- Society for Political Methodology Excellence in Mentoring Award, 2017.
- Caltech Graduate Student Council Mentoring Award, 2014-2015.
- Best Paper Prize "*From Piloting to Roll-out: Voting Experience and Trust in the First Full e-election in Argentina*" at the EVOTE2014 conference in Lochau/Bregnez, Austria, 2014.
- Fellow of the Society for Political Methodology, 2010.
- Best Paper Prize "*Assessing the Impact of E-Voting Technologies on Electoral Outcome: An Analysis of Buenos Aires' 2005 Congressional Election"* at the EVOTE2008 conference in Bregenz, Austria, 2008
- Caltech Graduate Student Council Mentoring Award, 2006-07
- Named and recognized by *Scientific American* magazine for outstanding acts of leadership in science and technology as a Policy Leader in the computing category of the 2004 "Scientific American 50".
- Emerging Scholar Award, Elections, Public Opinion, and Voting Behavior Section of the American Political Science Association, for the top scholar within ten years of Ph.D. receipt in the field, 2002.
- Robert H. Durr Award for the best paper applying quantitative methods to a substantive problem in political science at the 1997 Annual Meeting of the Midwest Political Science Association.
- Sprague Award for the best paper applying quantitative methods to a substantive problem in political science at the 1995 Annual Meeting of the Midwest Political Science Association.
- Brooks/Cole Award for the best paper written by a graduate student in the 1991 Annual Meeting of the Midwest Political Science Association.
- Distinction in the Department of Political Science, Carleton College, 1986, awarded for thesis titled *Latin American Revolutions: Going Beyond Skocpol*.

[PUBLICATIONS]

-Books-

- *Securing American Elections: How Data-Driven Election Monitoring Can Improve Our Democracy.* With Nicholas Adams-Cohen, Seo-Young Silvia Kim, and Yimeng Li. Cambridge University Press, Cambridge Elements, 2020, https://doi.org/10.1017/9781108887359.
- *Oxford Handbook of Polling and Polling Methods.* Edited with Lonna Atkeson. Oxford University Press, 2018.
- *Computational Social Science: Discovery and Prediction.* Edited volume. Cambridge University Press, 2016.
- *Nonpartisan Primary Election Reform: Mitigating Mischief.* With J. Andrew Sinclair. Cambridge University Press, 2015.
- *Election Administration in the United States: The State of Reform after Bush v. Gore.* Edited with Bernard Grofman. Cambridge University Press, 2014.
- *Evaluating Elections: A Handbook of Methods and Standards.* With Lonna Rae Atkeson and Thad E. Hall. Cambridge University Press, 2012.
- *Confirming Elections: Creating Confidence and Integrity Through Election Auditing.* Edited with Lonna Rae Atkeson and Thad E. Hall. Palgrave Macmillan, 2012.
- *New Faces, New Voices: The Hispanic Electorate in America.* With Marisa Abrajano. Princeton University Press, 2010.
- *Election Fraud: Detecting and Deterring Electoral Manipulation*. Edited with Thad E. Hall and Susan Hyde. Brookings University Press, 2008.
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- "Cambios en la forma de votar. La experiencia del voto electronico en Salta." Research in association with Julia Pomares, Marcelo Leiras, Maria Page, Carolina Tchintian and Anastasia Peralta Ramos, CIPPIC, 2011.
- "Election Day Voter Registration in Hawaii." With Jonathan Nagler. Prepared for Demos. February 2011.
- "Assessing Electoral Performance in New Mexico Using an Ecosystem Approach." With Lonna Rae Atkeson and Thad E. Hall. April 2010.
- "Same Day Voter Registration in Maryland." With Jonathan Nagler. Prepared for Demos. February 2010.
- "Same Day Voter Registration in New Mexico." With Jonathan Nagler. Prepared for Demos. January 2010.
- "Making Voter Registration Easier: Evaluation of the Welcome Kit Voter Registration Pilot Project." With Thad E. Hall and Morgan H. Llewellyn. January 2010.

- "Internet Voting in Estonia: A Comparative Analysis of Four Elections Since 2005." With Alexander H. Trechsel, Kristjan Vassil, Guido Schwerdt, and Fabian Breuer. Jan 2010.
- "Provisional Voting in New Mexico." With Lonna Rae Atkeson and Thad Hall. Pew Center on the States, *Provisional Ballots: An Imperfect Solution*, August 2009.
- "Provisional Ballots in the 2008 Ohio General Election." With Thad E. Hall. Pew Center on the States, *Provisional Ballots: An Imperfect Solution*, August 2009.
- "The New Mexico 2006 Post Election Audit Report." With Lonna Rae Atkeson and Thad E. Hall. September 2008.
- "Election Day Voter Registration in Nebraska." With Jonathan Nagler. Prepared for Demos, April 2008.
- "Election Day Registration in Massachusetts." With Jonathan Nagler. Prepared for Demos, March 2008.
- "Election Day Voter Registration in Iowa." With Jonathan Nagler. Prepared for Demos, November 2007.
- "Same Day Voter Registration in North Carolina." With Jonathan Nagler. Prepared for Demos, November 2007.
- "The New Mexico Election Administration Report: The 2006 November General Election." With Lonna Rae Atkeson and Thad E. Hall. August 2007.
- "Internet Voting in the March 2007 Parliamentary Elections in Estonia." With Alexander H. Trechsel, Guido Schwerdt, Fabian Breuer, and Thad E. Hall. Prepared for the Council of Europe, August 2007.
- "Election Day Voter Registration in Iowa." With Jonathan Nagler. Prepared for Demos, March 2007.
- "DRE Analysis for May 2006 Primary, Cuyahoga County, Ohio." Prepared for Election Science Institute, August 2006.
- "American Confidence in Electronic Voting and Ballot Counting: A Pre-Election Update." With Thad E. Hall and Morgan Llewellyn. November 2006.
- "Improving the Election Day Survey." With Thad E. Hall. March 2006.
- "Making Voting Easier: Election Day Registration in New York." With Jonathan Nagler and Catherine Wilson. Prepared for Demos, May 2004.
- "California Votes: Election Day Registration in California." With Stephen Ansolabehere. Prepared for Demos, May 2002.
- "Voting: What is, What Could Be." Caltech/MIT Voting Technology Project, June 2001.
- "Bush's Tax Cut." With Edward J. McCaffery. Prepared for the USC-Caltech Center for the Study of Law and Politics, 2001.
- "American Opinion About Election Reform." Prepared for USC-Caltech Center for the Study of Law and Politics, 2001.
- "California's Blanket Primary." With Jonathan Nagler. Prepared for the California Secretary of State, 1998.

-Unrefereed Publications and Chapters in Edited Volumes-

- "Working Group Statement on Developing Standards for Internet Ballot Return", Center for Security in Politics, University of California, Berkeley. https://csp.berkeley.edu/wp-content/uploads/2022/12/Working-Group-Statement-on-Internet-Ballot-Return.pdf.
- "Continued Transparency Needed on CA's Election Voting System." With Kim Alexander. Sacramento Bee, op-ed, September 14, 2021.
- "Successful Cessation Programs that Reduce Comorbidity may Explain Surprisingly Low Smoking Rates among Hospitalized COVID-19 Patients." With Bruce Cohen, Aaron Nichols, Stephen Grant, Zach Blumenfeld, Dennis Dougherty, Beate Ritz, and Henry Lester. Qeios, May 27, 2021. https://doi.org/10.32388/WURFH0.
- "Computational Social Science", with Seo-young Silvia Kim. In *Oxford Bibliographies in Political Science*. Edited by Sandy Maisel. New York: Oxford University Press, 2019, DOI: 10.1093/OBO/9780199756223-0285.
- "The Future of Voting", *The Wall Street Journal*, November 4, 2016.
- "Preferences, Constraints, and Choices: Tactical Voting in Mass Elections." With D. Roderick Kiewiet and Lucas Nunez. In Justin Fisher, editor. *Handbook of Public Opinion and Voting Behaviour*. New York: Routledge, forthcoming.

- "Publishing tips from a journal editor: selecting the right journal." *In The OUPblog Tenth Anniversary Book*, edited by Alice Northover. New York: Oxford University Press, 2015, pages 111-114.
- "Using Machine Learning Algorithms to Detect Election Fraud." With Ines Levin and Julia Pomares. In R. Michael Alvarez, editor. *Computational Social Science: Discovery and Prediction*. Cambridge University Press, 2016.
- "Resolving Voter Registration Problems: Making Registration Easier, Less Costly, and More Accurate." With Thad E. Hall. In R. Michael Alvarez and Bernard Grofman, editors. *Election Administration in the United States: The State of Reform after Bush v. Gore.* Cambridge University Press, 2014.
- "Democracia directa en California. Pasado, Presente y Futuro." With Welmar E. Rosado Buenfil. In Alfonso Ayala Sanchez, editor. *Nuevas Avenidas de la Democracia Contemporanea*. Instituto de Investigaciones Juridicas, Universidad Nacional Autonoma de Mexico, 2014.
- "Introduction to Political Analysis Mini-Symposium on Advanced in Survey Methodology." With Lonna Rae Atkeson. *Political Analysis*, Vol. 22, No. 3, 2014, 281-284.
- "Why Did Proposition 19 Fail?" With Jaclyn Kimble and J. Andrew Sinclair. In Katherine Tate, James Lance Taylor, and Mark Q. Sawyer, *Something's in the Air: Race and the Legalization of Marijuana*. Routledge, 2013.
- "Machines Versus Humans: The Counting and Recounting of Pre-Scored Punchcard Ballots." With Jonathan N. Katz, Sarah A. Hill and Erin K. Hartman. In R. Michael Alvarez, Lonna Rae Atkeson and Thad E. Hall, editors, *Confirming Elections: Creating Confidence and Integrity Through Election Auditing,* Palgrave Macmillan, forthcoming 2011.
- "Comprehensive Audits." With Lonna Rae Atkeson, Thad E. Hall and Jessica Taverna. In R. Michael Alvarez, Lonna Rae Atkeson, and Thad E. Hall, editors, *Confirming Elections: Creating Confidence and Integrity Through Election Auditing*, Palgrave Macmillan, forthcoming 2011.
- "The New Mexico Pilot Project." With Lonna Rae Atkeson and Thad E. Hall. In R. Michael Alvarez, Lonna Rae Atkeson, and Thad E. Hall, editors, *Confirming Elections: Creating Confidence and Integrity Through Election Auditing*, Palgrave Macmillan, forthcoming 2011.
- "Midiendo el desempeno electoral." In *Demos: El Voto Electronico*. Veracruz, MX, November 2010-January 2011, pp. 84-93.
- "Evaluacion del impacto de las nuevas tecnologias en la confianza de los votantes latinoamericanos: un analisis experimental." With Gabrial Katz and Julia Pomares. In Demos; El Voto Electronico. Veracrus, MX: November 2010-January 2011, pp. 28-41.
- "Assessing Voters' Attitudes Towards Electronic Voting in Latin America: Evidence from Colombia's 2007 E-Voting Pilot." With Gabriel Katz, Ricardo Llamosa and Hugo E. Martinez. In *E-Voting and Identity*, Edited by Peter Y.A. Ryan and Berry Schoenmakers. Berlin Heidelberg, Germany: Springer-Verlag, 2009, pages 75-91.
- "Voting Technologies." With Thad E. Hall. *The Oxford Handbook of American Elections and Political Behavior.* Edited by Jan E. Leighley, Oxford University Press, forthcoming.
- "Lessons and Trends in E-Voting: Initiatives in the U.S. and Abroad." With Thad E. Hall. *E-Voting: Perspectives and Experiences*, Edited by S. Jaya Krishna and Naveen Kumar, The Icfai University Press, Hyderabad, India, 2008, 181-199.
- "Assessing the Impact of E-Voting Technologies on Electoral Outcomes: An Analysis of Buenos Aires' 2005 Congressional Election." With Gabriel Katz, Ernesto Calvo, Marcelo Escolar, and Julia Pomares. In Robert Krimmer and Rudiger Grimm, Editors, *3rd International Conference on Electronic Voting, Proceedings*. http://www.e-voting.cc/static/evoting/files/katz_alvarez_calvo_escolar_pomares_assesing-the-impact_47-62.pdf.
- "Voting Online Around the World." With Thad E. Hall. *Voting in America, Volume 3. American Voting Systems in Flux: Debacles, Dangers, and Brave New Designs.* Edited by Morgan E. Felchner, Praeger Publishers, 2008, 137-143.
- "Discrete Choice Models". With Garrett Glasgow. *The Oxford Handbook of Political Methodology*, Edited by Janet M. Box-Steffensmeier, Henry E. Brady and David Collier, Oxford University Press, 2008, 513-529.
- In *Election Fraud: Detecting and Deterring Electoral Manipulation* (edited with Thad E. Hall and Susan D. Hyde):
  - "Introduction: Studying Election Fraud" (with Thad E. Hall and Susan D. Hyde).

  - "Measuring Perceptions of Election Threats: Survey Data From Voters and Elites" (with Thad E. Hall).
  - "Correlates of Fraud: Studying State Election Fraud Allegations" (with Frederick J. Boehmke).
  - "Fraud or Failure? What Incident Reports Reveal About Election Anomalies and Irregularities" (with D. Roderick Kiewiet, Thad E. Hall and Jonathan N. Katz).
  - "The Case of the 2002 General Election" (with Jonathan N. Katz).
  - "Conclusion: Understanding Election Fraud" (with Thad E. Hall and Susan D. Hyde).
- "Studying Statewide Political Campaigns", with Alexandra Shankster, in Henry E. Brady, Richard Johnston, editors, *Capturing Campaign Effects*, University of Michigan Press, 2006.
- "Rational Voters and the Recall Election." With D. Roderick Kiewiet and Betsy Sinclair, in Shawn Bowler and Bruce Cain, *Clicker Politics*, Prentice–Hall, published Aug 26 2005.
- "And now for something completely different for California elections: Other views: Commission would ease politicking" With Thad E. Hall, Special to *The Sacramento Bee*, published Tuesday, February 22, 2005.
- "Ambivalence as Internal Conflict." With Bethony Albertson and John Brehm, in Stephen C. Craig and Michael D. Martinez, *Ambivalence and the Structure of Political Opinion,* Palgrave Macmillan, December 2004.
- "Online Voting." With Thad Hall, in William Sims Bainbridge, *Berkshire Encyclopedia of Human-Computer Interaction*, Berkshire Publishing Group, 2004, 526-527.
- "Counting Ballots and the 2000 Election: What Went Wrong?" With Betsy Sinclair and Catherine H. Wilson, in A. Crigler et al., "Rethinking the Vote", Oxford University Press, 2004, 34-50.
- "Uncertainty and American Public Opinion", with John Brehm and Catherine Wilson, in B. Burden, *Uncertainty and American Politics*, Cambridge University Press, 2003.
- Review of *The Initiative and Referendum in California*, *1898-1998*, *Pacific Historical Review*, 2002.
- "Should I Stay or Should I Go? Crossover Voting in Assembly Races." With Jonathan Nagler, in B. Cain and E. Gerber, *California's Blanket Primary*, University of California Press, 2002.
- "Gender and Tax." With Edward J. McCaffery. In S. Tolleson-Rinehart and J. J. Josephson, editors, *Gender and American Politics*, M. E. Sharpe, 2000.
- Book review in *American Political Science Review*, 2000 (98:2), 463-464 of Cambridge University Press, *The Democratic Dilemma: Can Citizens Learn What They Need to Know?* 1998. Arthur Lupia and Mathew D. McCubbins.
- "Gender and Tax", with Edward J. McCaffery. 2000. In S. Tolleson-Ronhart and J. J. Josephson, editors, *Gender and American Politics*, M. E. Sharpe.
- Review of *Colorblind Injustice: Minority Voting Rights and the Undoing of the Second Reconstruction*, *Engineering and Science*, vol. LXII, no. 1-2, 1999, 54-55.
- Review of *Change and Continuity in the 1996 Elections*, *Political Science Quarterly*, Summer 1999, vol. 114, no. 2, 331.
- Review of *Political Analysis, Volume 5. American Political Science Review,* vol. 91, no. 3, 721-722.
- "Polmeth -- You've Come a Long Way, Baby." *The Political Methodologist*, Spring 1996, vol. 7, no. 2, 10-12.
- "The Role of Replication," in *Mistakes That Social Scientists Make*, edited by Richard Seltzer. New York: St. Martins Press, 1996.
- "Can Bush Hit a Home Run?" With Brian Loynd. *The Political Methodologist*, Spring-Summer 1994, vol. 5, no. 2, 2-4.
- "Methods Madness: Graduate Training and the Political Methodology Conferences." *The Political Methodologist*, Spring 1992, vol. 5, no. 1, 2-3.

[PROFESSIONAL PRESENTATIONS]

- TexMeth 2024, "TensorLY-LDA: Analyzing Social Media Conversations at Scale with Online Tensor LDA", UT Dallas, February 23, 2024.
- Google AI Public Sector Connect, "Using Natural Language Processing to Study Protest Behavior", October 14, 2022.
- Society for Political Methodology Annual Conference (poster presentation), July 21-23, 2022, Washington University in St. Louis.

- UCLA Biostatistics Seminar, "Analyzing Social Media Conversations at Scale With Tensor LDA", April 13, 2022.
- Annual Meeting of the Midwest Political Science Association, (three paper presentations, hybrid), April 8-10, 2022).
- UCLA Biostatistics Seminar, "Survey Attention", March 2, 2022.
- RRoCCET 21, Research Running on Cloud Compute & Emerging Technologies, "GCP Case Study: Studying COVID-19 Pandemic Misinformation and Protest Using Social Media Data, August 12, 2021, virtual conference.
- Fifth Annual Election Science, Reform, and Administration Conference (three posters), July 19-21, 2021, MIT Election Data Science Lab, virtual conference.
- Society for Political Methodology Annual Conference (poster presentation, paper discussant), July 13-16, 2021, NYU, virtual conference.
- "Innovation in the Election Industry: What's Next?" (presentation), July 13, 2021, Auburn University, webinar.
- UCLA Big Data and Politics Seminar Series, "Legislative Communication and Power: Measuring Leadership in the U.S. House", April 30, 2021, UCLA, virtual seminar.
- CSMaP Annual Conference (paper presentation), April 22-23, 2021, NYU, virtual conference.
- Annual Meeting of the Midwest Political Science Association, (four paper presentations), April 16-17, 2021, virtual conference.
- NSF Elections Workshop, Lessons Learned: Navigating a Presidential Election Through a Pandemic", (paper presentation, "Monitoring The Integrity of Voter Registration Data", March 25, 2021, NYU, virtual workshop.
- PolMeth Europe 2021 University of Hamburg, (paper presentation), March 18, 2021, virtual conference.
- Caltech Earnest C. Watson Lecture Series, "Can America Have a Safe and Secure Presidential Election?", October 7, 2020.
- Annual Meeting of the American Political Science Association, (paper and poster presentations) September 10-13, 2020, virtual conference.
- 2020 Conference of the Society for Political Methodology, University of Toronto, virtual conference (poster presentation), July 14-17 2020.
- University of Southern California, Political Institutions & Political Economy Collaborative, Election Administration and Technology Symposium, "Securing American Elections", January 28, 2020.
- LUMACSS Launch Conference, University of Lucerne, "Computational Social Science", November 11, 2019.
- 2019 Conference of the Society for Political Methodology, MIT (poster presentation and paper discussant), July 17-20, 2019.
- Annual Meeting of the Midwest Political Science Association, April 2019 (session chair and two paper presentations).
- Election Audit Summit, December 7-8, 2018, MIT (two presentations).
- Third Annual Southern California Methods Workshop, University of California Los Angeles, "Monitoring the Integrity of Voter Registration Databases Using Record Linkage", October 12, 2018.
- 2018 Conference of the Society for Political Methodology, BYU (poster presentation), July 2018.
- University of Southern California, Parties & Partisanship in the Age of Trump Symposium, Beyond Parties Roundtable presentation, February 13, 2018.
- University of Southern California, Political Institutions & Political Economy Collaborative, "Why Did Residual Votes Increase in the 2016 Election", February 6, 2018.
- University of California, Irvine, Institute for Mathematical Behavioral Sciences, "Strategy and Choice in Primary Elections", November 2, 2017.
- Southern California Data Science Conference, "Persuasion Modeling", October 22, 2017.
- University of Southern California, School of International Relations, "Election Forensics", October 9, 2017.
- Second Annual Southern California Methods Workshop, University of California Santa Barbara, "Using Attention Filters to Improve the Quality of Survey Reporting", September 19-20, 2017
- Annual Meeting of the American Political Science Association, August-September 2017, San Francisco, CA (roundtable presentation and paper presentation).

- 2017 Conference of the Society for Political Methodology, University of Wisconsin-Madison (poster presentation), July 2017.
- Annual Meeting of the Midwest Political Science Association, April 2016, Chicago, IL (two paper presentations).
- USC Schwarzenegger Institute for State and Global Policy, "California U.S. Senate Race and the Top-Two Primary", panelist, December 2, 2016.
- "Struggling with Data: Accessibility and Research Transparency." MIT Institute for Data, Systems, and Society Launch Event, September 22, 2016.
- Society for Political Methodology Summer Meetings, July 2016, Rice University (Poster presentation).
- "2016 American Presidential Election & the Obama Presidency." Carleton College, May 11, 2016 (panel discussion).
- Annual Meeting of the Midwest Political Science Association, April 2015, Chicago, IL (two paper presentations).
- Annual Meeting of the American Political Science Association, September 2015, San Francisco, CA (panel chair).
- University of Utah, Department of Political Science, May 29, 2015.
- Annual Meeting of the Midwest Political Science Association, April 2015, Chicago, IL (paper presentation).
- Annual Meeting of the American Political Science Association, September 2014, Washington, DC (roundtable presentation).
- "Blueprint to Implementation: Election Administration Reform for 2014, 2016, and Beyond. University of Chicago Institute of Politics, May 2014.
- Annual Meeting of the Midwest Political Science Association, April 2014, Chicago, IL (two paper presentations).
- Annual Meeting of the American Political Science Association, September 2013, Chicago, IL (Paper presentations and roundtable).
- Society for Political Methodology Summer Meetings, July 2013, University of Virginia (Roundtable).
- Annual Meeting of the Midwest Political Science Association, April 2013, Chicago, IL (Editor's Roundtable).
- Annual Meeting of the Western Political Science Association, March 2013, Hollywood, CA (roundtable presentation).
- Keynote Address, "An Overview of the Election Technology Landscape", NIST/EAC Future of Voting Systems Symposium, February 26-28, 2013, National Institute of Standards and Technology, Gaithersburg, MD.
- United States Election Assistance Commission, "Roundtable Discussion --- Informing Change: A Review of Events and Issues of the 2012 Elections Cycle", Washington, D.C., January 9, 2013 (roundtable presentation).
- Annual Meeting of the Midwest Political Science Association, April 2012, Chicago, IL (paper presentation).
- University of Connecticut, Department of Political Science, February 2012.
- Annual Meeting of the Midwest Political Science Association, April 2010, Chicago, IL (one paper presentation, one roundtable presentation).
- Annual Summer Meeting of The Society for Political Methodology, July 2010, University of Iowa (roundtable presentation).
- Annual Meeting of the Midwest Political Science Association, April 2010, Chicago, IL (one paper presentation).
- "Democracia Electoral: Hacia Una Nueva Agenda." Instituto Electoral Vercruzano: Universidad Cristobal Colon, Veracruz, MX (October 15, 2009); H. Congreso del Estado, Xalapa, MX (October 16, 2009).
- Annual Summer Meeting of The Society for Political Methodology, July 2009, Yale University, New Haven, CT (paper presentation).
- Annual Meeting of the American Political Science Association, September 2008, Boston, MA (two paper presentation).
- Scarborough Society of Shepherd University, June 2008 (presentation).
- Brookings Institution, Governance Studies and Election Reform Project, "Election Fraud: Detecting and Deterring Electoral Manipulation", May 2008 (presentation).

- European University Institute, "Innovations in Research on Political Behavior", April 2008 (two paper presentations).
- Annual Meeting of the Midwest Political Science Association, April 2008, Chicago, IL (two paper presentations).
- University of Iowa, Department of Political Science, February 2008.
- Annual Meeting of the American Political Science Association, July-August 2007, Chicago, IL
- Schloss Dagstuhl "Frontiers of Electronic Voting" Seminar in Germany. "Internet Voting in Estonia" (authored with Thad Hall and Alex Trechsel) and "Using Incident Reports to Detect Election Anomalies and Irregularities" (authored with Hall, Jonathan Katz, & Rod Kiewiet)
- Society for Political Methodology 24th Annual Summer Meeting, July 2007, Penn State University (discussant, panel)
- Annual Meetings of the Midwest Political Science Association, April 2007, (discussant, panels)
- National Academies of Engineering Symposium, The Impact of Technology on Voting and Elections in the 21st Century, with Erik Antonsson: "Bridging S&T and Politics in E-Voting." Irvine, CA, February 8, 2007
- Caltech/MIT VTP Conference: Voter Identification/Registration, Cambridge, MA, October 2006
- Caltech/MIT VTP Conference: Election Fraud, Salt Lake City, UT, September 2006
- 35th Annual IACREOT Conference (International Association of Clerks, Recorders, Election Officials and Treasurers), Panel Presentation: "Restoring Voter Confidence: Threat Identification, Analysis and Mitigation in the Practical World," July 2006
- Voices of Reform workshop, University of Southern California, April 2006
- Annual Meetings of the Midwest Political Science Association, April 2006 (three paper presentations)
- Election Assistance Commission meeting, Improving Election Survey, April 2006
- American Enterprise Institute for Public Policy-Brookings Institute Project on Election Reform Project Launch, February 2006
- Annual Meetings of the Western Political Science Association, March 2006 (two paper presentations)
- Commission on Federal Election Reform, Rice University, Houston, TX, July 2005 (testimony on voter registration).
- San Gabriel Valley Young Presidents Organization, Pasadena, October 2004 (presentation).
- "The 2004 Election: What Does It Mean for Campaigns and Governance?" USC Law School Conference, October 2004 (presentation).
- Caltech/MIT Voting Technology Project Symposium, "Voting Technology: Innovations for Today and Tomorrow", presentation and session leader, MIT, October 2004.
- JustDemocracy workshop presentation, Harvard University, October 2004.
- League of Women Voters of Los Angeles Forum, September 10, 2004. Keynote speaker.
- Annual Meetings of the American Political Science Association, August 2004 (roundtable presentation).
- The National Academies workshop on "A Framework for Understanding Electronic Voting", Washington DC, July 2004 (paper presentation).
- Annual Meetings of the Midwest Political Science Association, April 2004 (paper presentation).
- University of Michigan, Department of Political Science, January 2004 (presentation).
- "Digital Divide, Global Development and the Information Society", World Forum on Information Society, International Research Foundation for Development, Geneva, Switzerland, December 2003 (paper presentation).
- Internet Survey Workshop, Pacific Chapter of American Association for Public Opinion Research, October 2003 (Presentation).
- Modeling the Constitution Conference. California Institute of Technology, May 2003 (Discussant).
- Earnest C. Watson Lecture, "Voting: Where We Have Been, Where We Are Going", California Institute of Technology, April 2003 (presentation).
- Annual Meetings of the Midwest Political Science Association, April 2003 (two paper presentations).
- Election Reform, Cantigny Conference, November 2002 (presentation).
- Annual Meetings of the American Political Science Association, August 2002 (three paper presentations).
- Election Law Summit, Washington D.C., June 2002 (presentation).
- American Empirical Seminar Series, Stanford University, Stanford Institute for the Quantitative Study of Society, May 2002 (presentation).
- Annual Meetings of the Midwest Political Science Association, April 2002 (paper presentation).

- California Association of Election Officials, Los Angeles, April 2002 (presentation).
- Southern California Political Methodology Program, University of California, Riverside, October 2001 (paper presentation).
- City Clerk Summit III, Los Angeles County Registrar-Recorder, October 2001 (presentation).
- Annual Meetings of the American Political Science Association, September 2001 (two paper presentations).
- Democratic Caucus Special Committee on Election Reform, "Making Every Vote Count!" Los Angeles, CA, August 2001 (testimony).
- United States Senate, Committee on Governmental Affairs, Hearings on Election Reform, May 3, 2001 (written and oral testimony).
- Election Reform: 2000 and Beyond. USC-Caltech Center for the Study of Law and Politics, University of Southern California, April 2001 (paper presentation, panel session moderator).
- Annual Meetings of the Midwest Political Science Association, April 2001 (paper presentation).
- National Commission on Election Reform, April 2001 (testimony on new technology for elections).
- Pasadena Rotary, March 28, 2001 (presentation).
- Voting Technology Conference, Caltech-MIT Voting Technology Project, March 2001 (panel session moderator).
- Annual Meetings of the Western Political Science Association, March 2001 (paper presentation).
- Internet Voting and Democracy, Loyola Law School, October 2000 (paper presentation).
- e-Voting Workshop, Internet Policy Institute, Sponsored by the National Science Foundation, conducted in cooperation with the University of Maryland and hosted by the Freedom Forum, October 2000 (panel discussion chair and research presentation).
- Annual Meetings of the American Political Science Association, August 2000 (two paper presentations).
- California Voting in the 21st Century, Los Angeles, May 2000 (research presentation on Internet voting).
- Southern California Political Methodology Program, University of California, Santa Barbara, May 2000 (paper presentation).
- Annual Meetings of the Midwest Political Science Association, April 2000 (paper presentation).
- University of New Mexico, Political Science Department, April 2000.
- Annual Meetings of the Western Political Science Association, March 2000 (paper presentation, roundtable presentation).
- Southern California Political Methodology Program, UCLA Lake Arrowhead Conference Center, December 1999 (paper presentation).
- Annual Meetings of the American Political Science Association, September 1999 (paper presentation, discussant).
- Southern California Political Methodology Program, California State Polytechnic University, San Luis Obispo, May 1999 (paper presentation).
- Center for Basic Research in the Social Sciences, Harvard University, April 1999.
- Annual Meetings of the Midwest Political Science Association, April 1999 (paper presentation, discussant).
- Annual Meetings of the Western Political Science Association, March 1999 (paper presentation).
- Public Policy Institute of California, March 1999.
- University of Southern California, March 1999.
- Yale Law School, Yale University, February 1999.
- "Campaign 1998: The California Governor's Race", The Institute of Governmental Studies, University of California, Berkeley, January 1999 (paper presentation).
- "Proposition 227", Center for U.S. – Mexican Studies, University of California, San Diego, January 1999 (paper presentation).
- Emory University, October 1998. Annual Meetings of the Southern Political Science Association, October 1998 (paper presentation, discussant).
- University of California, Irvine, Institute for Mathematical Behavioral Sciences, October 1998.
- Annual Meetings of the American Political Science Association, September 1998 (two paper presentations, discussant).
- Fifteenth Political Methodology Conference, July 1998 (discussant).
- "California's Blanket-Open Primary: A Natural Experiment in Election Dynamics", University of California at Berkeley, June 1998 (participant).

- Annual Meetings of the Midwest Political Science Association, April 1998 (four paper presentations, roundtable discussant, poster presentation).
- University of California at Santa Barbara, April 1998.
- Annual Meetings of the Western Political Science Association, March 1998 (two paper presentations, discussant).
- "Orange Empires: Miami and Los Angeles" Conference. The Huntington Library, San Marino, California, February 27-28, 1998 (paper presentation).
- University of California at Riverside, February 1998 (Southern California Political Methodology Group).
- The Annenberg School of Communication, University of Pennsylvania, October 1997.
- Duke University, October 1997.
- Annual Meetings of the American Political Science Association, August 1997 (two paper presentations).
- Fourteenth Political Methodology Conference, July 1997 (discussant).
- University of California at Los Angeles, April 1997 (Southern California Political Methodology Group).
- Annual Meetings of the Midwest Political Science Association, April 1997.
- University of Michigan, March 1997.
- University of Arizona, December 1996.
- Annual Meetings of the Southern Political Science Association, November 1996 (three paper presentations.)
- University of Minnesota, October 1996 (Second CIC Interactive Video Methods Seminar broadcast to the University of Wisconsin--Madison, the University of Illinois, and Ohio State University).
- Annual Meetings of the American Political Science Association, August 1996 (three paper presentations, discussant).
- Annual Meetings of the Midwest Political Science Association, April 1996 (four paper presentations).
- National Election Studies Research & Development Conference on Congressional Elections, Chicago, IL, March 1996 (paper presentation).
- Southern California Political Economy Seminar, University of California-Irvine, September 1995 (paper presentation).
- Annual Meetings of the American Political Science Association, August 1995 (one paper presentation, chair-discussant).
- Twelfth Political Methodology Conference, July 1995 (paper presentation).
- Annual Meetings of the Midwest Political Science Association, April 1995 (three paper presentations).
- Annual Meeting of the Public Choice Society, April 1995 (paper presentation, discussant).
- Hoover Institution, Stanford University, February 1995.
- National Election Study Conference on the Impact of the Presidential Campaign, University of Pennsylvania, November 1994 (discussant).
- Southern California Political Economy Seminar, University of California--Irvine, October 1994 (discussant).
- Annual Meetings of the American Political Science Association, August 1994 (two paper presentations).
- Eleventh Political Methodology Conference, July 1994 (discussant).
- Annual Meetings of the Midwest Political Science Association, April 1994 (two paper presentations and chair of panel).
- Southern Political Science Association Annual Meeting, November 1993 (paper presentation).
- Annual Meetings of the American Political Science Association, September 1993 (two paper presentations).
- Tenth Political Methodology Conference, Florida State University, July 1993 (paper presentation).
- University of California at San Diego, June 1993.
- University of California at Riverside, May 1993.
- Annual Meeting of the Midwest Political Science Association, April 1993 (two paper presentations).
- Western Political Science Association Annual Meeting, April 1993 (chair of panel and discussant).
- Annual Meetings of the American Political Science Association, August 1992 (chair of roundtable and paper presentation).
- Ninth Political Methodology Conference, Harvard University, July 1992 (paper presentation).
- Midwest Political Science Association Annual Meetings, Chicago, IL., April 1992 (two paper presentations).
- The Political Consequences of War, The Brookings Institution, Washington, D.C., February 1992 (paper presentation).

- Annual Meetings of the American Political Science Association, August 1991 (two paper presentations).
- Midwest Political Science Association Annual Meeting, April 1991 (two paper presentations).
- Annual Meetings of the American Political Science Association, August 1990 (paper presentation and discussant).
- Midwest Political Science Association Annual Meeting, April 1990 (paper presentation).
- Conference on Political Economics, National Bureau of Economic Research, February, 1990 (paper presentation).
- Annual Meetings of the American Political Science Association, August 1989 (paper presentation).
- Southern Political Science Association Annual Meeting, September 1988 (discussant).

[OTHER PROFESSIONAL ACTIVITIES]

- Host, *Election Science Office Hours* (webinar and podcast), 2024-2025.
- Carleton Connects, "The Integrity of American Elections", September 21, 2022.
- PhD Thesis Defense Opponent, Iuliia Spycher-Krivonosova, "The Impact of Internet Voting on Election Administration: Directing Implementation Towards a Blessing or a Curse", Tallinn University of Technology, Tallinn, Estonia, 2022.
- Society for Political Methodology, Vice President (2021-2023), President-Elect (2023-2025).
- Center for Inclusive Democracy, Inclusive Data Advisory Committee member, 2021-2022.
- California Secretary of State, State Audit Working Group, member, 2020-2021.
- American Political Science Association, 2021 Heinz I. Eulau Award (*American Political Science Review* best paper), committee member, 2021.
- "Can America Have A Safe and Secure Presidential Election?" Pasadena Rotary presentation, September 23, 2020.
- Co-Editor, Elements in Campaigns and Elections, Cambridge University Press, September 2020 – present.
- Society for Political Methodology, Publications Committee Chair, 2019-2021.
- Organizing Committee, Election Audit Summit, MIT, December 7-8, 2018.
- "2018 Elections." Mayfield Sr. School presentation, November 8, 2018.
- Co-Editor, Elements in Quantitative and Computational Methods for Social Science, Cambridge University Press, May 2016 – present.
- Co-Editor, Political Analysis, January 4, 2010-December 31, 2017.
- "Election Reform in California: An Update." Pasadena Rotary presentation, October 26, 2016.
- "Voting and Elections." Mayfield Sr. School presentation, October 5, 2016.
- Midwest Political Science Association, Robert H. Durr Award, committee chair, 2016-2017.
- Society for Political Methodology Excellence in Mentoring Award, committee chair, 2015-2016.
- *EVOTE2014*, International Programme Committee Member, 2014.
- Editorial Board, *JETS: The Usenix Journal of Election Technology and Systems*, 2013-present.
- City of Pasadena, Redistricting Task Force member, 2011-2012 (mayoral appointee).
- Conference organizer, "Verifiable Elections and the Public." Schloss Dagstuhl Seminar 11281, July 10, 2011-July 15, 2011.
- Elections, Public Opinion, and Voting Behavior Section Emerging Scholar Award Committee, 2009-2010.
- Guest Co-Editor, "Special Issue on Election Administration and Voting Technology", *American Politics Research*, Volume 36, Number 4, July 2008
- "Winning The Hispanic Vote in 2008", with Jonathan Nagler, *The Democratic Strategist,* June 13, 2008.
- Filing of Amicus Brief, with Lonna Rae Atkeson, Delia Bailey, Thad E. Hall and Andrew D. Martin in support of petitioners William Crawford et al and Indiana Democratic Party et al, (Supreme Court Hearing of Indiana Voter Identification Law), November 2007.
- Editorial Board Member, *The Open Political Science Journal,* November 2007.
- Member, American Political Science Association Benjamin E. Lippincott Award Committee, April 2006.
- Member, Pasadena Task Force on Good Government, Pasadena, CA, October 2005 to 2006.
- Invited International Observer of the E-Voting Pilot, Buenos Aires, Argentina, October 2005
- Academic Advisor to the Commission on Federal Election Reform, 2005.

- HAVA Section 301 Task Force member (State of California), November 2004.
- Committee member, National Commission on Elections and Voting, 2004.
- Committee member, National Research Council Computer Science and Telecommunications Board Committee, National Academy of Sciences, "A Framework for Understanding Electronic Voting", 2004.
- Political Research Quarterly (PRQ) Editor Search Committee, 2004.
- Steering Committee member, The Commonwealth Club of California, 2004.
- Board of Scholars of the Initiative and Referendum Institute (IRI), University of Southern California, Winter 2002.
- Chair, Durr Award Committee, Midwest Political Science Association, 2003, 2004, 2005.
- Recall Election Symposium, Caltech-USC Center for the Study of Politics, September 2003.
- State Plan Advisory Committee member, Help America Vote Act (HAVA), Spring 2003.
- Co-director, Caltech/MIT Voting Technology Project, Fall 2002-present.
- Advisory Board, The Reform Institute, Advisory Board, 2001.
- Participant, Federal Voting Assistance Program, Voting Over the Internet, Peer Review Workshop, March 14, 2001.
- USC-Caltech Center for the Study of Law and Politics, Faculty participant.
- American Political Science Association Research Support Advisory Committee, 2000-2002.
- Advisory/Editorial board service (current and past), *Encyclopedia of Social Science Research Methods*; *American Journal of Political Science*; *Election Law Journal*; *Journal of Politics*; *Political Research Quarterly*; *Political Analysis*; *American Politics Research* formerly *American Politics Quarterly*; *Political Behavior*; *Journal of Election Technology and Systems*.
- Executive Council Representative, Western Political Science Association, 1998-2001.
- Book series co-editor, *Techniques of Political Analysis*, published by the University of Michigan Press, 1998-2003.
- Book series co-editor, *Analytical Methods for Social Research*, Cambridge University Press, 2003-present.
- Best paper prize committee chair, *Political Research Quarterly*, 2002.
- Program Committee and Comparative Politics Section Chair, 2000 Midwest Political Science Association Annual Meeting.
- Program Committee and Issues in Methodology Section Chair, 1999 Western Political Science Association Annual Meeting.
- Political Methodology Section (APSA) Publications Committee, 1997.
- Political Methodology Section (APSA) Nominations Committee chair, 1998.
- ICPSR Summer Program Advisory Committee, 1998.
- Political Methodology Section (APSA) delegate-at-large to the American Political Science Association, 1996 to 1998.
- Instructor, American Political Science Association Annual Meetings Short Course, "Models of Political Choice", 1997.
- Instructor, ICPSR Summer Program in Quantitative Methods, Advanced Maximum Likelihood, August 1998; August 1997.
- Instructor, ICPSR Summer Program in Quantitative Methods, Maximum Likelihood, July 1996.
- National Election Studies 1996 Planning Committee Member.
- "Campaigns and the Study of Congressional Elections". Memorandum to the NES Board of Overseers, September 5, 1995.
- "Survey Measures of Uncertainty: A Report to the NES Board on the Use of 'Certainty' Questions to Measure Uncertainty About Candidate Traits and Issue Positions," Memorandum to the NES Board of Overseers, January 1996.
- Program Committee and Political Methodology Section Chair, 1996 Midwest Political Science Association Annual Meeting.
- Co-editor, *The Political Methodologist*, Newsletter of the Political Methodology Section of the American Political Science Association, 1993-1996.
- Co-organizer, Southern California Political Economy Seminars,1993 to 1995.
- Participant in the Annual Political Methodology Summer Conferences, 1989, 1990, 1991, 1996, 2000.
- Participant in the Methodological Advances in Comparative Political Economy Conference, April 1991.
- Manuscript reviews [partial listing]: *American Journal of Political Science; American Political Science Review; American Politics Review; American Politics Research; British Journal of Political Science;*

Canadian Journal of Political Science; The Harvard International Journal of Press/Politics; Journal of Law, Economics and Organization; Journal of Politics; Journal of Theoretical Politics; Pacific Historical Review; Political Analysis; Political Behavior; Political Research Quarterly; Polity; Public Opinion Quarterly; Social Science Quarterly; State Politics and Political Quarterly.

- Book manuscript review [partial listing], University of Michigan Press, Harvard University Press, Princeton University Press, University of Chicago Press, University of Pittsburg Press, Quantitative Analysis in the Social Sciences (Sage Publications), Cambridge University Press, State University of New York Press, Massachusetts Institute of Technology Press, Ohio State University Press.
- Project proposal reviewer, National Science Foundation, Carnegie Corporation of New York.
- Columnist (monthly), *Pasadena Star News*, Opinion/Editorial, 2006-2007.
- Columnist (biweekly), *Pasadena Weekly*, "From the Ivory Tower", 1999-2000.
- Panelist, Pasadena Mayor Forum, March 3, 1999.
- Panelist, "Measuring Progress in Our Schools", March 21, 2000.
- Member, Internet Voting Task Force, California Secretary of State's Office, 1999.
- Panelist, National Science Foundation National Workshop on Internet Voting, October 2000.
- Consultant to: Duke University, Dean of Undergraduate Admissions (1988-90); Duke University, Law School Admissions (1990-91); State of California, Office of the Attorney General, *California Democratic Party vs. Jones* (1997); State of California, Secretary of State's Office, *Open Primary Analysis* (1998); Knight-Ridder Newspapers, *Hispanic Voter Poll 2000*; O'Melveny & Myers, LLP, *Righeimer vs. Jones* (2000); City of Compton, *Bradley vs. Compton* (2001); State of California, Senate Democratic Caucus, *Cano vs. Davis* (2001); Demos, *California Votes: Election Day Registration in California* (2002); Greenberg, Quinlan, Rosner, (*Hispanic Voter Surveys*) (2004); Greenberg, Quinlan, Rosner (NARAL Pro-Choice American) (2004); The Mellman Group (Hispanic Voter Surveys) (2004); Special Advisor, Greenberg, Quinlan, Rosner (2004-2008); Demos, Election Day Voter Registration (2004-2012); Obama For America, Consultant (2011-2012); Pivotal Targeting, Co-founder and Special Advisor (2012-present); Analytics Media Group, Senior Advisor (2015-2016); 605 Senior Advisor for Research and Development (2016-2020).

[INSTITUTE SERVICE]

- Caltech First-Year Admissions and Financial Aide (FAFA) Committee, 2023-present.
- Caltech Athletics and Physical Education Committee, 2023-present.
- Caltech Conversations on Artificial Intelligence, "Combating Misinformation Online", October 18, 2022. https://www.youtube.com/watch?v=ABgGWYcGd7U
- Faculty Lecture for Caltech Freshman Orientation, "Can America Have a Safe and Secure Election?", September 22, 2021.
- Caltech Data Analytics for Student Success Working Group, Chair, 2020-present.
- "2020 Election Debrief", Caltech Center for Inclusion and Diversity, November 4, 2020.
- Caltech Advisory Committee on Student Admissions and Recruitment, 2020-2021.
- COVID-19 and Implications for Addressing Global Crises in Health and Sustainability, Economic and Political Implications for Renewals and Climate Action. Resnick Sustainability Institute, webinar.
- "Computational Social Science", Caltech, October 30, 2019.
- "Election Security", Caltech *Break Through on the Road: Los Angeles*, February 9, 2019.
- "2018 Election Debrief", Caltech Center for Diversity, November 7, 2018.
- SURF Advisory Committee, 2017-2021.
- Faculty Liaison, Men's Varsity Basketball Team, 2017-2018, 2018-2019, 2019-2020, 2021-2022, 2022-2023, 2023-2024 seasons.
- "Post-Election Debrief", Caltech Center for Diversity, November 9, 2016. Also presented on November 15, 2016, Caltech International Students Programs.
- Keynote address, "The Mentoring Effect: Conference on Mentoring Undergraduate Researchers." May 26, 2016
- President's Diversity Council, 2008-2014.
- Caltech Faculty Board, 2008-2011.
- Administrative Committee on Diversity and Minority Affairs, 2004-2007.
- The Friends of the Caltech Library "Focal Presentation", September 27, 2004. "Voter Registration: Past, Present, and Future".

- Division of Humanities and Social Sciences, California Institute of Technology, Political Science Search Committee Chair, 1993, 1994, 1998, 1999, 2000, 2005, 2014.
- Division of Humanities and Social Sciences, California Institute of Technology, Political Science Search Committee, 2001 to present.
- Division of Humanities and Social Sciences, California Institute of Technology, Social Sciences Strategic Planning Committee Political Science Search Committee, 2004.
- FACS Science Reporting Institute, Research presentations, June 2001, June 2002.
- SURF Seminar presentation, August 7, 1996; July 25, 2001.
- Research presentations to the Executive Council of the Caltech Board of Trustees, December 2, 1996; July 12, 2001.
- Discovery Weekend presentation, March 16, 2001.
- Division of Humanities and Social Sciences, California Institute of Technology, Division Library Committee, 1993.
- Hazardous Chemical Safety Committee, California Institute of Technology, 2000 to 2010.
- Computational Science and Engineering Committee, California Institute of Technology, 2000.
- Chair, Caltech Women's Center Advisory Board, 1998 to 2001. Women's Center Advisory Committee Member, California Institute of Technology, 1994 to 1998. Women's Center Advisor Board, Chair, 1998-2001.
- Ph.D. Advisor or Thesis Committee Chair, California Institute of Technology:
  - Fang Wang (Political Science, 1998)
  - Garrett Glasgow (Political Science, 1999
  - Fred Boehmke (Political Science, 2000)
  - Tara Butterfield (Political Science, 2001)
  - Catherine Wilson (Political Science, 2002)
  - Carla VanBeselaere (Political Science and Economics, 2004)
  - Betsy Sinclair (Political Science 2007)
  - Delia Bailey (Political Science 2007; Co-chair)
  - Kyle Mattes (Political Science 2008)
  - Morgan Llewellyn (Political Science 2009)
  - Gabriel Katz (Political Science 2010)
  - Ines Levin (Political Science 2011)
  - Andrew Sinclair (Political Science 2013)
  - Jaclyn Kimble (Political Science 2014)
  - Allyson Pellissier (Political Science 2015)
  - Lucas Nunez (Political Science 2018)
  - Nicholas Adams-Cohen (Political Science 2019)
  - Seo Young (Silvia) Kim (Political Science 2020)
  - Yimeng Li (Political Science 2022)
  - Daniel Guth (Social Science 2023)
  - Daniel Ebanks (Political Science 2024)
  - Claudia Kann (Political Science 2025)
  - Zhuofang Li (Social Science 2025)
  - Jacob Morrier (Social Science 2025)
  - Mitchell Linegar (Social Science 2026)
  - Matthew Estes (Social Science 2026)
  - Ransi Clark (Social Science 2026)
- Dissertation Committee Member, California Institute of Technology:
  - Mark Fey (Political Science, 1994)
  - Jason Saving (Economics, 1995)
  - Michael Udell (Economics, 1995)
  - Micah Altman (Political Science, 1998)
  - Reginald Roberts (Political Science, 2001)
  - Valentina Bali (Political Science and Economics, 2001)
  - Elizabeth Penn (Political Science, 2003)
  - Kevin Roust (Political Science, 2005)
  - Sarah Hill (Political Science, 2007)

  - Peter Foley (Political Science 2013)
  - Samantha Myers (Economics 2015)
  - Matthew Chao (Economics 2015)
  - Welmar Rosado (Political Science 2017)
  - Liam Clegg (Economics 2018)
  - Mali Zhang (Economics 2018)
  - Chujun Lin (Neuroscience and Cognitive Psychology 2019)
- Dissertation Committee Member, New York University, Marisa A. Abrajano (Political Science, 2005); New York University, Melanie A. Goodrich (Political Science, 2009); European University Institute, Andrea Calderaro (Political Science 2010); European University Institute, Kristjan Vassil (Political Science 2011); University of California, San Diego, Francisco Cantu (Political Science, 2013); University of New Mexico, Lisa Bryant (Political Science, 2014); University of New Mexico, Alex Adams (Political Science, 2019); American University, Simon Heuberger (Political Science, 2021); University of California-Irvine, Melina Much (Political Science, 2024).
- Sponsor, Summer Undergraduate Research Fellowship, California Institute of Technology:
  - Andrew Koclanes and Ryan Hu (2024)
  - Shreya Nag, Sidd Shendrikar, Jamal Omosun (2023)
  - Sreemanti Dey, Niva Laurent and Patrick Lim (2022)
  - Sarah Hashash and Akshay Gowrishankar (2021)
  - Ben Juarez, Sara Kangaslahti, Kyle McGraw, Chase Pagon (2020)
  - Ethan Eason and Michelle Hyun (2019)
  - Spencer Schneider (2018)
  - Jackson Briones (2018)
  - Cherie Jia (2016)
  - Clare Hao (2016)
  - Sean McKenna (2014)
  - Susan Ballentine (2013)
  - Andrew Sinclair (2007)
  - Daniel T. Knoepfle and Erin Hartman (2006)
  - Daniel T. Knoepfle and Eugenia S. Iofinova (2004)
  - Melanie Goodrich (2002, 2003)
  - Betsy Sinclair (2001)
  - Neal Reeves (1999)
  - John White (1994)
  - Stacy Kerkela (1993)
- Alumni College presentation, June 22, 2000.
- Division of Humanities and Social Sciences, California Institute of Technology, Graduate Admissions Committee, 1993 to 1998, 2000, 2008. Committee Chair, 1996.
- Research presentation to the Caltech Associates, October 27, 1998.
- Social Science .01 Lecture, "Empirical Voting Models", May 8, 1998.
- Director of Graduate Studies and Graduate Option Representative, Social Sciences, 1996 to 1998.

[RESEARCH AND TEACHING INTERESTS]

Computational social science, artificial intelligence, American voting behavior, campaigns and elections, American government, macro-political economy, positive theory/public choice, comparative politics, quantitative methodologies.

March 7, 2025